REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of Claims:

No claims are currently being cancelled.

Claims 20-22 and 30-32 are currently being amended.

No claims are currently being added.

This amendment amends claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 20-22 and 30-32 are now pending in this application, whereby claims 23-29 and 33-38 are withdrawn from consideration.

35 U.S.C. § 112, 1st Paragraph Rejection of Claims 20-22 and 30-32:

In the Office Action, claims 20-22 and 30-32 were rejected under 35 U.S.C. § 112, 1st Paragraph, as failing to comply with the written description requirement, since "optical collector" and "optical distributor" are allegedly not fully explained in the specification. Applicant respectfully disagrees with this rejection.

However, in the interest of expediting prosecution, "optical collector" has been amended to "optical multiplexer", and "optical distributor" has been amended to "optical demultiplexer", whereby there is explicit support for these elements in the specification and in the drawings.

Claim Rejections – Prior Art:

In the Office Action, claims 20, 21, 30 and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,502,131 to Vaid et al. in view of U.S. Patent No. 5,208,811 to Kashio et al.; and claims 22 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Vaid et al. in view of Kashio et al. and further in view of U.S. Patent No. 6,591,368 to Ryu. These rejections are traversed with respect to presently pending claims 20-22 and 30-32, for at least the reasons given below.

In the invention according to presently pending independent claim 20, one of said LAN connecting devices comprises "a first maintenance data control part for outputting a maintenance signal for performing maintenance test processing of communication and for instructing the maintenance test at a frame of the OSI layer 2, to said optical multiplexer as the optical signal of the second input/output wavelength", while the other of the LAN connecting devices comprises "a second maintenance data control part receiving a maintenance signal from the frame of said OSI layer 2, for performing said maintenance test processing of communication by the optical signal of the second input/output wavelength outputted by said optical demultiplexer", and "the maintenance test is performed on a path between LAN connecting devices by the maintenance signal from the frame of the OSI layer 2".

Further, claim 30 recites a maintenance data control part for receiving a maintenance signal with which a maintenance test is instructed at a frame of the OSI layer 2, for performing maintenance test processing of communication by the optical signal of the second input/output wavelength outputted by said optical demultiplexer, wherein a maintenance test is performed for a connection path with said opposite party LAN connecting device by the maintenance signal from the frame of the OSI layer".

With the features as provided above, the present invention according to claims 20 and 30 can offer remarkable technical effects and advantages such that even though the LAN connecting device does not have a protocol up to the layer 3, different input/output wavelengths are allocated respectively to the ordinary LAN communication and the communication test relating to the communication, and accordingly, the wavelength for the communication test can be used to perform the maintenance test on a path between the LAN connecting devices.

The present invention according to claim 21 recites that "one of said LAN connecting devices comprises a first maintenance data control part for performing failure monitoring processing and outputting alarm information obtained by the failure monitoring processing and with which a failure content can be recognized at a frame of the OSI layer 2, to said optical multiplexer as the optical signal of the second input/output wavelength" while the other of said LAN connecting devices comprises "a second maintenance data control part receiving the alarm information from the frame of said OSI layer 2, for performing failure processing by the optical signal of the second input/output wavelength outputted by said optical demultiplexer, wherein transmission of said alarm information from one of said LAN

connecting devices to the other of said LAN connecting devices is performed by the frame of the OSI layer 2".

Further, the invention according to claim 31 includes "a maintenance data control part for performing failure monitoring processing and outputting alarm information obtained by the failure monitoring processing and with which a failure content can be recognized at a frame of the OSI layer 2 to said optical multiplexer as the optical signal of the second input/output wavelength, wherein transmission of said alarm information to said opposite party LAN connecting device is performed by the frame of the OSI layer 2".

With the features stated above, the present invention according to claims 21 and 31 can offer remarkable technical effects and advantages such that even though the LAN connecting device does has not a protocol up to the layer 3, different input/output wavelengths are allocated respectively to the ordinary LAN communication and the transmission of the alarm information for notifying the communication state, and accordingly, the alarm information for notifying the communication state between the LAN connecting devices can be transmitted with the use of the wavelength for the alarm communication.

The present invention according to claim 22 recites that one of said LAN connecting devices comprises 'a first maintenance data control part for performing power-state monitoring processing and for outputting a power-off signal obtained by the power-state monitoring processing and with which power-off can be recognized at a frame of the OSI layer 2 to said optical multiplexer as the optical signal of the second input/output wavelength" while the other of said LAN connecting devices comprises "a second communication data control part receiving a power-off signal from the frame of said OSI layer 2, for recognizing the power-off of one of said LAN connecting devices by the optical signal of the second input/output wavelength outputted by said optical demultiplexer, wherein the transmission of said power-off signal from one of said LAN connecting devices to the other of said LAN connecting devices is performed by the frame of the OSI layer 2".

Further, the present invention according to claim 32 includes "a maintenance data control part for performing power-state monitoring processing and outputting a power-off signal which is obtained by the power-state monitoring processing and with which power-off can be recognized at a frame of the OSI layer 2, to said optical multiplexer as the optical signal of the second input/output wavelength, wherein transmission of said power-off signal to said opposite LAN connecting device is performed by the frame of the OSI Layer 2".

With the configuration as stated above, the present invention according to claims 22 and 32 can offer remarkable technical effects and advantages such that even though the LAN connecting device does has not a protocol up to the layer 3, different input/output wavelengths are allocated respectively to the ordinary communication and the power-off state communication, and the signal for notifying the power-off between the LAN connecting devices can be transmitted to the other LAN connecting device with the use of the wavelength for power-off state communication.

Now, turning to the cited art of record, Vaid et al. discloses a LAN connecting device having a function of executing ordinary LAN communication processing and maintenance test processing.

Further, Kashio et al. discloses a technology in which "A LAN terminal transmits a LAN frame having an OSI 2 header added thereto with communication bus information (cf: maintenance test information and alarm information in the present invention) to an inter-working unit. When the LAN frame is received, the inter-working unit executes a format conversion for converting the same LAN frame into an ISDN frame, being based upon ISDN communication bus information".

Further, Ryu discloses a technology that when one of the LAN connecting devices causes power-off, a state communication means transmits a signal indicating the power-off to the other LAN connecting device.

As stated above, Vaid et al. does not teach or suggest the use of a signal for the OSI layer 2 as in the presently claimed invention, but rather it uses a signal for the OSI layer 3. That is, Vaid et al. only discloses the content within the scope of the prior art stated in the specification in the present application.

Now, turning to the features disclosed in Kashio et al., that reference discloses "A LAN terminal transmits a LAN frame having an OSI 2 header added thereto with communication bus information (cf: maintenance test information and alarm information in the present invention) to an inter-working unit. When the LAN frame is received, the inter-working unit executes a format conversion for converting the same LAN frame into an ISDN frame, being based upon ISDN communication bus information".

However, the technology disclosed in Kashio et al. has a purpose of simplifying the protocol conversion between the LAN and a different kind of a network such as ISDN, and accordingly, the intercommunication between the LAN terminal and the ISDN terminal can

be made only by converting a communication bus identifier of the OSI 2 at the LAN/ISDN connecting device when the ordinary communication is carried out between the LAN terminal and the ISDN terminal.

That is, it is believed that Kashio et al. does not teach or suggest an important feature of the present invention, that is, transmission of the maintenance signal and the alarm information at the OSI layer 2.

Further, since the technology disclosed in Kashio et al. is such that the ordinary intercommunication is executed between the LAN terminal and the ISDN terminal, it is clear that there are provided layers from an OSI layer 1 to an OSI layer 3, that is, the layers which can transmit a maintenance signal and alarm information in the prior art, and accordingly, it is not required that the OSI layer 2 transmits the maintenance signal and the alarm information in the system of Kashio et al.

It is noted that even though the Office Action has pointed out the use of the OSI layer 2 for executing the ordinary intercommunication between the LAN terminal and the ISDN terminal, Kashio et al. does not disclose or suggest the claimed feature in which the OSI layer 2 transmits the maintenance signal and the alarm information. Accordingly, such a technical effect as "the maintenance signal and the alarm information are transmitted by the OSI layer 2" cannot be obtained by the combination of Vaid et al. and Kashio et al.

It is also submitted that Vaid et al. and Kashio et al. respectively have objects and tasks which are completely different from each other, and thus these references cannot be combined with each other in order to achieve the objects and the tasks of the present invention (it is noted that the use of the OSI layer 2 for ordinary intercommunication between the LAN terminal and the ISDN terminal has been well-known to those skilled in the art, in view of its communication technology).

Therefore, presently pending claims 20, 21, 30 and 31 are patentable over the combined teachings of Vaid et al. and Kashio et al.

Furthermore, Ryu does not teach or suggest the claim features in which "the maintenance signal and the alarm information are transmitted by the OSI layer 2". Accordingly, it is believed that the features of claims 22 and 32, in which "the maintenance signal and the alarm information are transmitted by the OSI layer 2", cannot be obtained over the combination of Vaid et al., Kashio et al., and Ryu.

Conclusion:

Since all of the issues raised in the Office Action have been addressed in this Amendment and Reply, Applicants believe that the present application is now in condition for allowance, and an early indication of allowance is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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